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January 22, 2016

Shrewsbury Zoning Board of Appeals
c/o Shrewsbury Office of Planning and Economic Development
100 Maple Avenue
Shrewsbury, MA 01545

Subject: The Pointe at Hills Farm, 440 and 556 Hartford Turnpike
40B Comprehensive Permit
Preliminary Plan Review

Dear Zoning Board of Appeals Members:

We received the following documents on December 31, 2015:

- Plans entitled Site Plans-Comprehensive Permit for The Pointe at Hills Farm in Shrewsbury, Massachusetts (Worcester County) dated November 6, 2015, prepared by Waterman Design Associates, Inc. for Smart Growth Design, LLC. (15 sheets)

- Bound document entitled The Pointe at Hills Farm Shrewsbury, Massachusetts, Comprehensive Permit Application under M.G.L. Chapter 40B, Sections 20-23 dated November 2015, submitted by Smart Growth Design, LLC.

- Document entitled Stormwater Management Summary for The Pointe at Hills Farms, Shrewsbury, Massachusetts dated November, 2015, prepared by Waterman Design Associates, Inc. for Smart Growth Design, LLC. (Section 18 of the bound Comprehensive Permit Application.)

Graves Engineering, Inc. (GEI) has been requested to review and comment on the plans' conformance with applicable "Zoning ByLaw of the Town of Shrewsbury, Massachusetts" adopted June 19, 1967 and amended through May 20, 2015; Massachusetts Department of Environmental Protection (MADEP) Stormwater Management Policy and standard engineering practices. GEI was authorized to proceed with this review December 23, 2015. As part of this review GEI visited the site on January 20, 2016.

Our comments follow:

Zoning By-Law

1. The Zoning By-Law requires "one and one-half (1-1/2) parking spaces for each dwelling unit therein and sufficient off-street parking for visitors and employees…" The plans propose parking for the dwelling units but no additional parking for visitors and employees, except for one additional parking space in Phase II. (§VII.D.1.a)

2. For both project phases, the plans are missing existing structures within 200 feet of the project. The building on the n/f Yellow Freight property is missing from the Phase I plans and the northern building on the n/f South Willow Realty Trust property is missing from Sheet C2.00 of the Phase II plans. (§VII.F.3.f.9)

3. On Sheet C2.01 five accessible parking are proposed whereas the Massachusetts Architectural Access Board (MAAAB) requirement for 151 spaces is six accessible spaces. (§VII.F.3.f.11)

4. Snow storage has not been addressed yet. At a minimum, the applicant should develop a concept for managing snow and show the snow storage areas on the plans. (§VII.F.3.f.14)

5. The large trees proposed within the detention basin areas should be relocated outside of the basins. Any revisions should also not propose large trees on the earth-fill slopes. (§VII.F.3.f.16)

Rules Relative to the Submission and Review of a Comprehensive Permit Application

6. GEI has no issues relative to compliance with these rules.

Rules and Regulations Governing Special Permits & Site Plan Review

7. GEI has no issues relative to compliance with these rules and regulations.

Subdivision Rules and Regulations

8. Not applicable. The driveways within the project will not become public ways.

Hydrology, Hydraulic Calculations & Stormwater Management Policy

11. GEI reviewed the hydrology computations. We found the computations to be in order except as noted in the following two comments.

12. On the Phase I - Existing Hydrology Plan, the subcatchment delineation of E102S and on the Proposed Hydrology Plan, the subcatchment delineation of P103S were not shown in their entirety. The delineation of all subcatchments need to be shown in their entirety.

13. On the Phase 1 – Proposed Hydrology Plan, there are two subcatchments labeled "P103S" and no Subcatchment "P102S"; this appears to be a typographic error but should be corrected. In the post-development hydrology calculations, Subcatchment P102S was modeled as discharging to Infiltration System INF-102. However, it seems that once the subcactment labeling is revised, it will be found that Subcatchment P102S will not discharge to INF-102. If so, the hydrology calculations will also have to be revised.

14. The preliminary plans do not include all of the drainage pipes modeled in HydroCAD (such as outlets for P301P, P102P, P105P, P108P, P110P, P302P and P304P). It would be helpful if the plans included these pipes.

15. GEI reviewed the plans and supporting documents for compliance with MADEP Stormwater Standards in the context of a preliminary plan submittal. Documentation for compliance with certain standards (peak rate attenuation, groundwater recharge and water quality) that pertain to project viability were reviewed whereas other

Standards (e.g. construction-phase erosion controls, long-term operation and maintenance plans and illicit discharge statements) apply to the preparation of construction documents. The following four comments pertain to project viability.

16. The following items were not included with this submission and therefore could not be reviewed for compliance: required recharge volume calculations, drawdown time calculations, water quality calculations and sediment forebay sizing calculations. At a minimum, the design engineer should provide pertinent calculations to demonstrate that at a preliminary plan level the stormwater standards could be satisfied if the project is approved. We recognize that these computations may be subject to update during the preparation of construction plans.

17. In the Standard 4 discussion on Page 8, the Stormwater Report states that "Water quality measures will be designed to provide a minimum of 80% Total Suspend Solids (TSS) removal and to treat 0.5 of runoff prior to discharging to the upland areas of the sites." The value of 0.5 inches is appropriate for Phase II, however a value of 1.0 inch must be used for Phase I if this portion of the project is considered a land use with higher potential pollutant loads (LUHPPLS) as stated in Standard 5 on Page 9 of the Stormwater Report.

18. In Phase II, Stormwater Basin DB-304 was designed with vertical retaining walls surrounding it. Even though the shorter retaining walls are proposed to be 2.4 feet high, the basin should have slopes for egress from the basin for both persons and for animals. Furthermore, the taller retaining wall on the north side of the basin will prohibit maintenance access to the basin.

19. Sheet C1.02 of the plans proposes a new drain pipe to convey stormwater across Stoney Hill Road. During my site visit, I viewed the accumulation of ice on the Stoney Hill Road sidewalk about ten to twenty feet north of the proposed pipe location. This ice was a result of stormwater runoff from the site. In short, the concept of collecting stormwater before it enters the Stoney Hill Road right-of-way doesn't seem unreasonable. However, further consideration of this proposal is warranted. The applicant should elaborate about the ability to obtain permission from the land owner(s) on the southwest side of Stoney Hill Road to install a new pipe and its discharge. Also, the design engineer should provide adequate information to demonstrate that negative impacts downstream of this new discharge point will not occur. Finally, the location of the new drainage pipe's inlet and the drainage system's detailed design will have to be addressed. This level of detail could be done during the preparation of construction plans if the project goes forward.

20. In Phase II, Stormwater Basin DB-302 was designed and modeled such that stormwater will be discharged from the emergency spillway during a 100-year storm event. Use of the emergency spillway should be reserved for emergency conditions; water should be discharged through the basin's primary outlets during storm events up to and including a 100-year storm event. This level of detail could be addressed during the preparation of construction plans if the project goes forward.

21. The concept of perimeter erosion controls was shown on Sheets C1.02 and C2.02. If the project is approved, the Board may wish to consider a condition of approval that requires the applicant to prepare a more detailed erosion control plan during the preparation of construction plans.

22. The parking area at the west side of Phase II is roughly 30,500 sq. ft. or 0.7 acres in size. The plans proposes one single inlet catch basin to drain this parking area. The parking area may need greater catch basin inlet capacity. This is a hydraulic issue and not a hydrologic issue. This level of detail could be evaluated during the preparation of construction plans if the project goes forward.

General Engineering Comments

23. On Sheet C2.02 there is an 8% grade between the proposed 500 contour and the existing 498 contour at the Phase II exit to Stoney Hill Road. An 8% grade at the intersection approach is too steep.

24. The proposed 498 contour at the southeast radius of the Phase II project exit to Stoney Hill Road needs to tie into the existing 498 contour at the edge of the Stoney Hill Road pavement. As currently drawn, the location of the proposed 498 contour at the curb line represents a curb instead of a smooth transition from the driveway to Stoney Hill Road.

25. We defer to the Town of Shrewsbury whether fences should be provided around the stormwater facilities to deter access to these facilities. If fences are to be required, they should either be shown on the preliminary plans or addressed as a condition in the Comprehensive Permit.

26. We understand that the Shrewsbury Water Department and its consultant will review the proposed water utilities and will address the availability of water. Likewise, we understand that the Shrewsbury Sewer Water Department and its consultant will review the proposed sewer utilities and will address the availability of sewer capacity.

27. The plans propose fire hydrants located throughout the site. If not already done, the Applicant should solicit input from the Fire Department and Water Department relative to the proposed number and locations of the fire hydrants.

28. In the Phase II portion of the project, the forebay for stormwater basin DB-302 (located at the eastern corner of the site) is within the municipal sewer easement and will inhibit the use of the easement for operating the sewer system. Also, water discharged to the forebay (above the sewer main) could infiltrate to the sewer pipe bedding stone and potentially infiltrate into the sewer system if there are any leaking joints in the pipe. Stormwater impoundments should be located away from the sewer system.

29. On Sheet C1.03, the water and sewer mains located southwest of Building 5 are only about six feet apart; a minimum separation of ten feet is required.

30. Although the proposed grading and the utilities are shown on separate plans, it appears that the 1:1 riprap slope in Phase II will encroach over the sewer manhole located near proposed Stormwater Basin DB-302. The 1:1 slope should not impede access to the manholes or use of the easement; a 1:1 slope around the manhole cover will make it difficult to stage personnel and equipment during sewer maintenance operations. Similarly, the 1:1 slope is proposed length-wise along the easement for approximately 100 feet and will occupy about half of the easement's width. We defer

to the Town of Shrewsbury if this encroachment into the sewer easement is acceptable.

31. The retaining wall at the Phase I stormwater basin will have to be designed to withstand periodic inundation. Retaining wall structural designs are typically addressed prior to the start of construction.

32. In Phase II, a transformer pad is proposed adjacent Stoney Hill near Building 3. This area has a steep grade. The plans should be revised to show proposed grading and tree clearing limits to support the necessary grade changes or the transformer pad should be relocated.

General Comments

33. For both phases of the project, the "Zoning Summary Tables" include the requirements for the Route 20 Overlay District. This information should also be included within the permit application section labeled; "Section 9 List of Exceptions wavier requests."

34. The Phase II plans are missing the lines for the overhead wires located along the Hartford Turnpike frontage. The utility poles were shown.

We trust this letter addresses your review requirements. Feel free to contact this office if you have any questions or comments.

Very truly yours,
Graves Engineering, Inc.

Jeffrey M. Walsh, P.E.
Vice President